

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
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Instruction Memorandum No. 2003-082
Expires: 09/30/2004

To: All Field Officials
From: Assistant Director, Minerals, Realty and Resource Protection
Subject: Financial Guarantee Cost Estimates for Notices and Plans of Operations

Program Area: Mining Law Administration, Surface Management

Purpose: The purpose of this Instruction Memorandum (IM) is to provide guidance for the review and acceptance of financial guarantee cost estimates for Notices and Plans of Operations under the 43 CFR 3809, Surface Management Regulations.

Policy/Action: Bureau of Land Management (BLM) Offices must review financial guarantee cost estimates submitted by operators of Notices and Plans of Operations. The operators must post a financial guarantee sufficient to cover reclamation costs as if the BLM were hiring a contractor to perform reclamation after the project area has been vacated. The estimate must include all operating, maintenance and BLM administrative costs (43 CFR 3809.554). Operations to be conducted under a new or modified Notice or Plan of Operations may not commence until the operator has provided the BLM with an acceptable financial guarantee (43 CFR 3809.312(c), 3809.412, and 3809.555).

Notices on file with the BLM on January 20, 2001, that are extended according to 43 CFR 3809.333 must also provide financial guarantees as outlined in WO IM 2003-042 (November 22, 2002). Once the operator has provided the BLM with an acceptable financial guarantee, the BLM office responsible for adjudicating financial guarantees must provide the operator with a Financial Guarantee Accepted Decision. The attached guidance is provided to assist the BLM field offices when reviewing these estimates.

Time Frame: This guidance, as it applies to extended, new, and modified Notices, and all Plans of Operations, is effective immediately.

Budget Impacts: There will be a budget impact, but there is no estimate at this time.

Background: The revised surface management regulations became effective on January 20, 2001, with subsequent amendments that took effect through December 31, 2001. The final regulations require new, extended and modified Notices, and all Plans of Operations to post full-cost financial guarantees in an amount sufficient to allow BLM to contract with a third party to reclaim the operations according to 43 CFR 3809.552(a).

Manual/Handbook Sections Impacted: Bureau Manual Section 3809. This guidance will be included in the 3809 Surface Management Manual and Handbook that is now being prepared.

Coordination: Office of the Solicitor, BLM State and Field Offices.

Contact: If you have any questions concerning this instruction memo, please contact Scott Murrellwright, Solid Minerals Group, at 202-785-6568.

Signed by:
John W. Broderick
Acting, Deputy Assistant Director
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Authenticated by:
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4 Attachments

- 1 – BLM’s Review and Evaluation Role (5 pp)
- 2 - Reclamation Cost Estimation Summary Sheet (2 pp)
- 3 - Reclamation Financial Guarantee Checklist (3 pp)
- 4 - Reclamation Cost Model for Notice-Level Operations (3 pp)

Guidelines for Reviewing Financial Guarantee Costs

BLM's Review and Evaluation Role

BLM's task is to review and evaluate the operator's financial guarantee cost estimate to determine if he/she has correctly identified and incorporated all of the applicable reclamation and administrative costs (identified below). The reclamation costs included in financial guarantee calculations for new Notices and Plans of Operations will be reviewed and evaluated based on the reclamation standards according to 43 CFR 3809.420. Operator estimates of reclamation costs for extended Notices shall be reviewed based on the 43 CFR 3809.1-3(d) reclamation measures that were in effect immediately prior to January 20, 2001 (43 CFR parts 1000-end, revised as of October 1, 2000). In reviewing reclamation costs estimates for extended Notices, BLM must ensure that the operator documents what reclamation measures will be performed to meet the reclamation measures in 43 CFR 3809.1-3(d). The responsible BLM field office must agree that these measures will prevent unnecessary and undue degradation and documentation of these reclamation measures must be contained in the case file.

In performing this review, if the operator has not included BLM's administrative costs, the responsible BLM office will notify the operator (in writing) of those costs along with any deficiencies or additional information needed in order for BLM to complete the review. The BLM office may assist the operator in identifying costs to be included in the estimate. An operator is not required to hire a professional engineer or geologist to prepare a cost estimate but in some cases it may be desirable for them to do so. BLM may recommend this option to the operator, but may not recommend any specific individual or firm. It is not BLM's responsibility to calculate the reclamation cost for an operator, but rather to determine if the reclamation cost estimate provided by the operator is acceptable.

Notice and Plan of Operations Costing Estimates

In reviewing reclamation cost estimates the field office review must ensure the operator has provided the following when applicable:

Costs must be estimated as if BLM were hiring a contractor to perform all required reclamation (43 CFR 3809.552(a)).

Costs must include the use of off-site equipment as if the project area was vacated, and they must include all associated mobilization and demobilization costs [43 CFR 3809.554(a)].

The operator's estimate must cover all reclamation requirements in Notices and approved Plan of Operations [43 CFR 3809.301(b), .401(d), .552(a) and 43 CFR 3809.1-3(d) for extended Notices].

The estimate must include when applicable, all interim maintenance to maintain compliance with applicable environmental requirements while contracts are developed and executed [43 CFR 3809.552(a)].

The estimate must cover costs to construct any identified long-term treatment facilities required by the filed Notice or approved Plan of Operations [43 CFR 3809.552(a)]. (Generally applied to cyanide operations and operations that result in acid mine drainage).

Labor costs for construction (earth moving) must be based on federally mandated labor rates (Davis-Bacon wages for contracts over \$2,000) as required by law and Subpart 22.4 of the Federal Acquisition Regulations (FAR). If a contract is solely for the dismantling, demolition, or removal of improvements, the Service Contract Act applies unless further work which will result in the construction, alteration or repair of the improvements at that location are contemplated. If such further work is intended, even through a separate contract, then the Davis-Bacon (D-B) wages apply. (www.access.gpo.gov/davisbacon)

If Davis-Bacon wages or a contractor's estimate is used to determine a cost, there is the possibility of double accounting when it comes to applying a "Profit" line item. Depending on how the D-B wages are listed, they may include base pay, payroll loading (Social Security Workers Compensation, and Unemployment Insurance), overhead, and profit. For example, last year a typical dozer operator in Idaho was paid \$37.59 to \$40.25 per hour. This wage included 14.6 percent payroll loading, 10 percent overhead, and 6 percent profit.

Contractors typically apply all costs, including profit to a bid estimate. An itemized estimate should be requested if a lump sum estimate is submitted.

It is recommended that the responsible BLM specialist coordinate with their state procurement analyst concerning current labor wages, contracting requirements, and advice on various types of contracts, contract language, and administration.

Cost Identification

The costs identified below must be included in the financial guarantee estimate. This will require the reviewer to pay attention to costing standards that are in part based on the Federal Acquisition Regulations (FAR). This instruction contains suggested percentages for meeting these requirements that are to be treated as rules of thumb and not as precise costs specified by the regulations. Costs other than those listed below may be included in a calculation if they are explicitly addressed in a Federal-State agreement regarding the financial guarantee and are required by state law.

- 1) Operating and Maintenance (O&M) Costs - The operator's estimate must identify the relevant O&M costs relating to reclamation including:
 - a) Equipment rental or acquisition costs
 - b) Equipment operation costs

- c) Equipment maintenance costs.
- d) Cost of operating supplies.
- e) Labor costs for operations, maintenance and supervision.
- f) Reclamation materials acquisition costs.

2) BLM Administrative Costs - BLM must ensure that the accepted financial guarantee estimate includes the required administrative costs:

- 1) The cost to BLM to develop an Engineering, Design and Construction (ED&C) Plan for reclamation should the operator not reclaim (implementation of the reclamation plan).
 - a) Reported costs for plan preparation have ranged from 0.5 to 10 percent of the estimated operation and maintenance costs.
 - b) You should base your amount on a survey of similar contracts within your state.
- 2) A contingency fund to cover unforeseen circumstances related to the ED&C Plan.
 - a) Federal and state agencies that routinely prepare construction cost estimates generally apply a contingency of 3 to 10 percent of the estimated operation and maintenance costs.
 - b) You should base your amount on a survey of similar fees within your state. Where State law specifies the amount, please use that figure.
- 3) The prime contractor's profit of approximately 10 percent of the estimated O&M costs.
- 4) The contractor's liability insurance premium equal to 1.5 percent of the estimated labor costs for the project with estimated contract costs over \$100,000.
- 5) A set amount equal to 3 percent of the estimated O&M costs for the payment of premiums for both a performance bond and a payment bond as required by the Miller Act with estimated contract costs over \$100,000 (40 U.S.C. 270et seq.).
- 6) BLM's Labor and Operations costs for the Field and State offices to administer the contract.
 - a) Estimates for covering the contract administration ranges from 10 to 18 percent of the estimated O&M costs.
 - b) You should survey your contract administration and inspection costs to determine the most reasonable amount for your state.

- 7) BLM's indirect costs (building rental, electricity, telephone, etc.). The indirect cost rate to be assessed on all cost recoverable, reimbursable, trust, and road maintenance projects for FY 2003 is 17.8 percent (see WO IM 2003-011, October 8, 2002).

Determining the Acceptability of a Reclamation Cost Estimate

The responsible BLM office should cost out the reclamation operation to ensure the operator's estimate is acceptable. The attached *Reclamation Cost Estimate Summary Sheet* (Attachment 2) is provided as an aid in the process of documenting the reclamation cost estimate. Also attached is a *Reclamation Financial Guarantee Checklist* (Attachment 3) that should be used in calculating the engineering and environmental costs required to properly stabilize and reclaim the disturbed area. The checklist is designed to accompany the *Reclamation Cost Estimate Summary Sheet*. Neither the summary sheet nor the check-list are all-inclusive, but both are intended to serve as a reminder of issues that should be considered.

Additional sources that may be useful in conducting a cost analysis are: applicable parts of the Office of Surface Mining "Handbook for Calculation of Reclamation Bond Amounts" (<http://www.wrcc.osmre.gov/>), BLM's Solid Minerals Reclamation Handbook H-3042-1, the Caterpillar Performance Handbook, Western Mine Engineering, Means Site Work Cost Data, Dataquest (equipment operating and owning costs), and Heaprec (U.S. Bureau of Mines software for calculating reclamation costs).

Alternative Method for Notice Operations

For proposed exploration to be conducted under a Notice it may be appropriate for BLM to develop and use a standard reclamation cost schedule (Excel spreadsheet) in lieu of detailed calculations of financial guarantee amounts based on engineering designs. The concept behind the use of a standard amount for a reclamation cost estimate is to keep the workload in calculating the reclamation costs commensurate with the risk associated with the activity. The schedule may be developed based on local/regional costs to reclaim typical notice-level activities (roads, drill pads, drill-hole abandonment, trenches, pits, structure removal, site stabilization, re-vegetation etc.) for specific kinds of terrain (topography). Such a schedule may be developed by the BLM specialist conducting a survey of local/regional-licensed contractors/excavators to determine an average reclamation cost for a specific activity. The cost estimate may be expressed in dollars per acre, dollars per linear foot, or some other unit of measure that is appropriate for the particular activity.

Attachment 4 (*Reclamation Cost Model for Notice-Level Operations*) is an example of a standard reclamation cost schedule concept that has been adapted to a cost model (Excel spreadsheet). The model can be modified to accommodate different sizes and types of equipment for specific activities and terrains in order to develop the input costs.

Where a BLM State or field office develops a reclamation cost schedule for estimating the amount of the required financial guarantee for Notice operations, the schedule must be reviewed every two years to ensure the costs inputs are kept current.

A standard reclamation cost estimate should only be used where the Notice operation meets the activity and terrain profile used in establishing the standard amount. The use of a standard schedule for the reclamation cost estimate is optional and an engineering cost analysis is always an acceptable alternative. In all cases, the financial guarantee estimate should always be sufficient to fully reclaim the site, using a third party.

Review Results and Decisions

Acceptable Review Results - When you have received an estimate that is acceptable, you must provide the operator with a written decision as to the amount of the required financial guarantee (43 CFR 3809.554(b)). An operator may not begin operations under a new or modified Notice or approved Plan of Operations without first providing BLM with an acceptable financial guarantee that meets the requirements of 43 CFR 3809.551 thru 3809.572. Notices on file with the BLM on January 20, 2001 that are extended as provided for under 43 CFR 3809.333, may continue operations for 60 days from receipt of the decision to submit an acceptable financial guarantee (WO IM 2003-042).

Unacceptable Review Results - If you find the operator has incorrectly calculated operating and maintenance costs or you find that the estimate is based on out-of-date cost data that does not reflect the actual cost of reclamation; the estimate will not be accepted. When an estimate is not acceptable, you must notify the operator, in writing (decision), of the unacceptability, identify the deficiencies or errors that led you to your conclusion, and require a submission of a corrected calculation. You must also advise the operator to incorporate the administrative costs outlined above if they are not included in the estimate.* Where the reclamation cost estimate for a new Notice is not acceptable to the BLM, the Notice will not be considered complete as required under 43 CFR 3809.301. A Plan of Operations reclamation estimate cost/financial guarantee should be submitted by the operator at a time specified by BLM [43 CFR 3809.401(d)]. Operators are prohibited from commencing operations until a financial guarantee has been provided that is acceptable to the BLM [43 CFR 3809.605(d)]. If you find that the estimate for an extended Notice is not acceptable, you must issue a decision (Additional Information Required) as described in WO IM 2003-042, giving the operator 30 days from receipt to provide all of the requested information.

Decisions regarding Reviews – Decisions relating to the acceptability or unacceptability of a financial guarantee are subject to appeal under the provisions of 43 CFR 3809.800. An operator may elect to seek a State Director review under 43 CFR 3809.800(a) or file an appeal directly with the Office of Hearings and Appeals (OHA) under 43 CFR 3809.801. When the review and evaluation of a financial guarantee and/or instrument has been conducted by the State Office, a request for State Director review under 43 CFR 3809.806 may not be accepted.

* A financial guarantee is composed of the reclamation cost estimate and the required administrative costs.

EXAMPLE: RECLAMATION COST ESTIMATION SUMMARY SHEET

(Summary Sheet does not include BLM's Indirect Cost Rate of 17.8 %)

Notice []

Plan of Operations []

BLM Case-file No. _____

Project Name: _____

Enter those values in the cost estimate that are appropriate to this project. All reclamation costs are to be calculated as third party contracts. This summary sheet is to be accompanied by a map and worksheet describing how each itemized cost estimation was calculated.

A. EARTHWORK/RECONTOURING

<u>ITEM</u>	<u>LABOR</u> ¹	<u>EQUIPMENT</u>	<u>MATERIALS</u>	<u>TOTAL</u>
1. Roads	\$ _____	\$ _____	\$ _____	\$ _____
2. Drill Site(s)	\$ _____	\$ _____	\$ _____	\$ _____
3. Drill Hole Abandonment	\$ _____	\$ _____	\$ _____	\$ _____
4. Pits/Adits/Trenches	\$ _____	\$ _____	\$ _____	\$ _____
5. Process Ponds	\$ _____	\$ _____	\$ _____	\$ _____
6. Heaps	\$ _____	\$ _____	\$ _____	\$ _____
7. Dumps (Waste & Landfill)	\$ _____	\$ _____	\$ _____	\$ _____
8. Tailings	\$ _____	\$ _____	\$ _____	\$ _____
9. Structure & Building Areas	\$ _____	\$ _____	\$ _____	\$ _____
10. Storage & Equipment Areas	\$ _____	\$ _____	\$ _____	\$ _____
11. Drainage Control	\$ _____	\$ _____	\$ _____	\$ _____
12. Mobilization/Demobilization	\$ _____	\$ _____	\$ _____	\$ _____
13. Miscellaneous ²	\$ _____	\$ _____	\$ _____	\$ _____
SUBTOTAL AA@	\$ _____	\$ _____	\$ _____	\$ _____

B. REVEGETATION/STABILIZATION

<u>ITEM</u>	<u>LABOR</u> ¹	<u>EQUIPMENT</u>	<u>MATERIALS</u>	<u>TOTAL</u>
1. Roads	\$ _____	\$ _____	\$ _____	\$ _____
2. Drill Site(s)	\$ _____	\$ _____	\$ _____	\$ _____
3. Pits/Adits/Trenches	\$ _____	\$ _____	\$ _____	\$ _____
4. Process Ponds	\$ _____	\$ _____	\$ _____	\$ _____
5. Heaps	\$ _____	\$ _____	\$ _____	\$ _____
6. Dumps (Waste & Landfill)	\$ _____	\$ _____	\$ _____	\$ _____
7. Tailings	\$ _____	\$ _____	\$ _____	\$ _____
8. Structure & Building Areas	\$ _____	\$ _____	\$ _____	\$ _____
9. Storage & Equipment Areas	\$ _____	\$ _____	\$ _____	\$ _____
10. Drainage Control	\$ _____	\$ _____	\$ _____	\$ _____
11. Monitoring	\$ _____	\$ _____	\$ _____	\$ _____
12. Miscellaneous ²	\$ _____	\$ _____	\$ _____	\$ _____
SUBTOTAL AB@	\$ _____	\$ _____	\$ _____	\$ _____

C. DETOXIFICATION/WATER TREATMENT/DISPOSAL OF WASTES

<u>ITEM</u>	<u>LABOR</u> ¹	<u>EQUIPMENT</u>	<u>MATERIALS</u>	<u>TOTAL</u>
1. Process Ponds/Sludge	\$ _____	\$ _____	\$ _____	\$ _____
2. Heaps	\$ _____	\$ _____	\$ _____	\$ _____
3. Dumps (Waste & Landfill)	\$ _____	\$ _____	\$ _____	\$ _____
4. Tailings	\$ _____	\$ _____	\$ _____	\$ _____
5. Surplus Water Disposal	\$ _____	\$ _____	\$ _____	\$ _____
6. Fluid Management ³	\$ _____	\$ _____	\$ _____	\$ _____
7. Monitoring	\$ _____	\$ _____	\$ _____	\$ _____
8. Miscellaneous ²	\$ _____	\$ _____	\$ _____	\$ _____
SUBTOTAL AC@	\$ _____	\$ _____	\$ _____	\$ _____

D. STRUCTURE, EQUIPMENT AND FACILITY REMOVAL	<u>LABOR</u> ¹	<u>EQUIPMENT</u>	<u>MATERIALS</u>	<u>TOTAL</u>
	\$ _____	\$ _____	\$ _____	\$ _____
E. SUBTOTAL - OPERATIONAL PROJECT COSTS (A THROUGH D)	\$ _____	\$ _____	\$ _____	\$ _____
F. CONTINGENCY ⁴				\$ _____
G. INSURANCE ⁵ (ON SITE LIABILITY)				\$ _____
H. BOND ⁶ (PERFORMANCE AND PAYMENT)				\$ _____
I. PROFIT ⁷				\$ _____
J. BLM CONTRACT ADMINISTRATION ⁸				\$ _____
K. GRAND TOTAL (E THROUGH J)			\$ _____	\$ _____

1. For Federal construction contracts. Davis-Bacon wage rates are required for contracts over \$2,000. Wage rates also contain Federal Insurance Corporation of America (FICA), and other required coverage and benefits covering the workforce. If the quoted hourly rates contain FICA, Davis-Bacon wage rates and insurance bond premiums, the operator may sign a statement under penalty of USC 1001, that the above listed rates contain these items and that itemization of these costs are therefore not necessary.

2. Miscellaneous items should be itemized on accompanying worksheets.

3. Calculate and use only when mineral processing activities are involved. Fluid management represents the costs of maintaining proper fluid management to prevent overflow of solution ponds through premature cessation or abandonment of operations. Calculate a six month direct cost estimate which includes power, supplies, equipment, labor and maintenance.

4. A contingency cost is included in the reclamation cost estimation to cover unforeseen cost elements in the estimating procedure. Calculate the contingency cost as a percentage of the operational project costs as follows: up to and including \$500,000, use 10%; over \$500,000 to \$5 million, use 8%; over \$5 million to \$50 million, use 6%; and greater than \$50 million, use 4%.

5. Insurance premiums are calculated at 1.5% of the total labor costs. Enter the premium amount only on this line if insurance items listed in #1 above are not included in the itemized unit costs.

6. Federal construction contracts exceeding \$100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium is figured at 1.5% of the total operational project costs. Enter the sum of both premium costs on this line.

7. For Federal construction contracts, use 10% of estimated operational project costs.

8. For Federal construction contracts, use 18% of operational project costs for estimates up to and including \$1 million. Use 14% of estimated project costs over \$1 million to \$25 million and 10% of estimated project costs over \$25 million.

Attach sources/information used in cost estimate (examples: Caterpillar Performance Handbook, contractor=s estimate, BLM state office procurement analyst, etc.) _____

RECLAMATION COST CHECKLIST

NOTE: This checklist is provided to assist the operator in calculating the engineering and environmental costs required to properly stabilize and reclaim the area disturbed by mineral exploration and/or mining operations. The checklist is designed to accompany the RECLAMATION COST ESTIMATION SUMMARY SHEET. It is not all inclusive, but is intended to serve as a reminder of issues that should be considered.

Access roads and drill pads

1. Mobilization and demobilization
2. Recontouring or regrading to approximate the original topography as closely as possible.
3. Removal of culverts.
4. Ripping or scarifying the surface.
5. Water diversion construction.
6. Restoration or stabilization of drainage areas or stream beds.
7. Revegetation.

Drill hole and well abandonment

1. Use the requirements for drill-hole and well (water, monitoring and piezometer) abandonment as mandated by your state mining and/or environmental regulatory agencies. Include a graphic if necessary.

Trenches, pits, shafts, and adits

1. Mobilization and demobilization.
2. Recontouring or regrading to approximate the original topography as closely as possible.
3. Revegetation.
4. Securing portals from public entry.

Waste rock dumps, overburden, and interburden storage areas

1. Encapsulation, mixing or other engineered placement method in controlling acid rock drainage (ARD) migration.
2. Recontouring and regrading to approximate the surrounding topography as closely as possible to enhance stability, reduce susceptibility to erosion, and facilitate efforts to establish vegetation.
3. Diversion of run-on.
4. Covering with rock, clay, topsoil, other growth medium or other cover material.
5. Revegetation.

RECLAMATION COST CHECKLIST CONTINUED

Dams for tailings ponds

1. Covering with rock, clay, topsoil, other growth medium or other cover material.
2. Revegetation.
3. Rendering the dam incapable of storing any mobile fluid in a quantity which could pose a threat to the stability of the dam, or to public safety.
4. Construction of temporary containment basins and water treatment facilities for leakage or outflow of effluent.

Impoundment for tailings

1. Regrading to promote run-off and reduce infiltration.
2. Covering with waste rock, clay, topsoil, other growth medium or other cover material.
3. Revegetation.
4. Diversion of run-on.
5. Temporary containment basins and water treatment facilities for leakage or outflow of effluent.

Heaps from leaching

1. Cost of maintaining proper fluid management to prevent overflow of solution ponds through premature cessation or abandonment of the operation (six month direct cost estimate for recirculating process fluids). Include the cost of a Process Fluid Inventory, which typically runs from \$15,000 to \$35,000, depending on site complexity.
2. Rinsing, detoxification and neutralization procedures as approved in the notice.
3. Containment and treatment of outflows of residual chemicals or fluids from the heaps, including any disposal of surplus or drain down water. Include all engineering, development and reclamation costs.
4. Diversion of run-on.
5. Regrading to enhance structural stability, promote run-off, reduce infiltration, and control erosion.
6. Covering with waste rock, clay, topsoil, other growth medium or other cover material.
7. Stabilization and revegetation.

Solution ponds, settling ponds, and other non-tailings impoundments

1. Backfilling and grading as approved in the notice.
2. Restoration of the pre-disturbance surface water regime, if appropriate.
3. Proper disposal of process pond sludge.

Building foundations, facilities, structures and other equipment

1. Demolition costs to the level of the foundation and burial costs of the demolition debris on site, in conformance with applicable solid waste and hazmat disposal requirements.
2. Salvage operations and sale costs. No provision for salvage value or credit is permitted.

RECLAMATION COST CHECKLIST CONTINUED

3. Off-site disposal costs of "1" above, in conformance with applicable solid waste disposal and hazmat requirements.
4. Costs of continued use in a manner that is consistent with the proposed post mining land use.

Open pit mines

1. Providing for the public safety.
2. Stabilization of pit walls or rock faces where required for public safety.
3. Construction and maintenance of berms, fences, or other means of restricting public access.
4. Costs associated with the creation and maintenance of a lake for recreation, wildlife enhancement, or other beneficial use.
5. Revegetation

Underground mines

1. Sealing shafts, adits, portals, and tunnels to prevent access.
2. Construction and maintenance of berms, fences, or other means of restricting access.

Revegetation

1. Application of top soil or other growth medium.
2. Seed bed preparation.
3. Selection of appropriate species of seeds or plants (consult BLM staff specialist).
4. Addition of soil amendments such as fertilizers, mulches, or other compounds to assist in plant growth.
5. Planting or seeding (equipment, personnel, cost of seeds/plants).

Site Maintenance, Monitoring, and Evaluation

1. Any site monitoring costs as required by the BLM.
2. Monitoring well costs for heaps, leach fields, bioreactors and tailings ponds as required by the [insert the requirements mandated by your state=s mining and/or environmental regulatory agency}.
3. Evaluation to determine whether the revegetation and slope stability meet the criteria established for bond release or project closeout if work is done by BLM contractor.

Reclamation Cost Model for Notice-Level Operations

This Reclamation Cost Model (model) is provided as an example of an optional method to simplify the reclamation cost estimate requirements for Notice-Level operations. Use of a reclamation model/schedule is not required nor is it always appropriate. This model is not all inclusive, but is intended to serve as guide in developing a reclamation cost model using an Excel Spread sheet once the input costs have been determined. The BLM Nevada State Office in collaboration with the Nevada Division of Environmental Protection developed this model. The cost inputs used were derived from actual Nevada reclamation costs reported in 2001 and 2002. It is the responsibility of the appropriate BLM office to develop a reclamation cost model with the appropriate input costs. The input costs and the method by which they are derived must be defensible and documented in each case file.

The following is an explanation of the Nevada Reclamation Cost Model (Attachment 4).

Operation Inputs - The user of the model would need to enter information about the proposed exploration operation. Where applicable to the proposed operation, linear feet of road (with side slope >30< and <30<) and acres of non-road disturbance that will need to be reclaimed, and number of feet of open drill hole to be plugged (anticipated to intercept groundwater and not expected to intercept groundwater) will need to be entered into the spreadsheet.

Cost Inputs and Assumptions - The model's cost inputs include mobilization and demobilization costs, labor, equipment and material costs for earthwork, revegetation and hole plugging, and administrative costs. The operating and maintenance costs are shaded light gray in the spreadsheet.

For road reclamation, the cost figures used in the model are based on the use of an excavator as the primary equipment involved in recontouring. The model's cost information for road reclamation assumes an average road width of 14 feet. Pad, sump, trench and other non-road disturbances assume the use of a dozer as the primary heavy equipment for recontouring those features.

The revegetation costs for disturbed areas assume a seed mix that will result in a diverse plant community that includes grasses, forbs, shrubs and/or trees. Such a seed mix may exceed state or local revegetation standards, and/or may not be appropriate for all sites. The application of the seed mix assumes two passes over the disturbed area. The first pass is to harrow (rip or disc) the surface and then and a second pass to spread the seed.

Since drill holes are often plugged immediately after testing, the model is set up to cover the maximum number of feet of drill hole that will be left open at any point in time. This approach may not cover all holes that will be drilled. The user of the model should consult the State Office to ensure this approach is consistent with local policy on financial guarantee requirements for exploration drill holes.

For drill hole plugging, a critical variable is whether the drill hole intercepts groundwater. Plugging a wet drill hole, one that intercepts groundwater, it is assumed drilling equipment will be required to properly plug the hole. The cost estimates for plugging wet holes assumes filling the wet horizon with concrete grout, filling the dry horizon with bentonite and capping the hole with a 10-foot concrete plug.

For plugging dry holes, those that do not intercept groundwater, it is assumed no specialized equipment will be necessary. The assumption used in estimating the cost for plugging dry holes is each hole will be filled with bentonite.

The user should keep in mind that the requirements for drilling bore holes and reclamation, may differ from state to state. For example, the Arizona Department of Water Resources regulates all drilling operations and operators involving drill holes exceeding 100 feet or less, if water is expected to be encountered.

The mobilization/demobilization costs in Appendix 4-3 are based on the site being 150 miles from the equipment vendor. The average mobilization costs for reclaiming surface disturbances, including roads, pads, sumps and trenches, is \$750 per piece of equipment. Mobilization costs for plugging open drill holes that are anticipated to intercept groundwater is estimated to be \$1,350. Average mobilization costs for plugging open dry drill holes that are not expected to intercept groundwater is \$600. The model is set to only use the 'wet hole' mobilization cost should the user add values to both wet and dry drill holes entries. The user of the model should be aware that these mobilization costs might vary significantly depending on the actual distance from the site to the source of the required equipment.

**Reclamation Cost Model
For Notice-Level
Operations**

Linear Feet of Road Side Slope <30% Side Slope >30%	Linear Feet		Cost/Linear Foot	Road Reclamation
	0	Recontouring Cost <30%	\$1.50	\$0
	0	Recontouring Cost >30% Revegetation Cost	\$2.40 \$0.20	\$0 \$0
Acres of Non-Road Disturbance including, Pads, Sumps & Trenches	Acres		Cost/Acre	Pad, Sump & Trench Reclamation
	0	Recontouring Cost Revegetation Cost	\$2,600.00 \$600.00	\$0 \$0
		Mobilization Cost	\$750.00	\$0
Drill Holes Open Feet of Open Holes - Wet Feet of Open Holes - Dry	#/Feet		Cost/Foot	Drill Hole Plugging
	0	Plugging Cost - Wet	\$12.00	\$0
	0	Plugging Cost - Dry	\$4.70	\$0
		Mobilization Cost - Wet Mobilization Cost - Dry	\$1,350.00 \$600.00	\$0 \$0
				<u>Total Reclamation Cost</u> \$0
Administration Costs		*Insurance	1.5% Labor Cost	\$0
		*Bond Maintenance	3% Rec. Cost	\$0
		Contractor Profit	10% Rec. Cost	\$0
		Contract Admin.	18% Rec. Cost	\$0
		Contingency	10% Rec. Cost	\$0
		Indirect Costs	17.8% Rec. Cost	\$0
			<u>Total Administration Cost</u> \$0	
Total Bond Amount			Bond Amount	\$0

* Only Administered if Estimated Contract Costs over \$100,000.

